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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Tatsuji Higuchi

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EXAMINER

HENN, TIMOTHY J

ART UNIT

PAPER NUMBER

2622

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/686,633	Applicant(s) HIGUCHI ET AL.	
	Examiner Timothy J. Henn	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,9-11,13-15,17,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,9-11,13-15,17,19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments are considered moot in view of a new interpretation of the previously cited references as described below.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 5,796,428) in view of Yokota et al. (JP 03-089682) in view of Chamberlain (US 5,221,964).

[claim 1]

Regarding claim 1, Matsumoto discloses an electronic image pickup apparatus comprising: a taking lens including a plurality of lenses (Figure 2, Item 202 and Figure 3, Item 301); an image pickup device for effecting photoelectric conversion of an object light after passing through the taking lens unit (Figure 2, Item 203); recording means for recording image pickup signal obtained by effecting photoelectric conversion at the image pickup device (Figure 1, Item 104 or 109) and an image display section for displaying an image located on a back surface of an apparatus body (Figure 3, Item 305) wherein the taking lens unit is disposed right in front of the image display section

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(Figure 3). However, Matsumoto does not disclose an optical axis alternation means for altering the direction of the image pickup optical axis as claimed.

Yokota discloses an electronic image pickup apparatus including a reflecting mirror disposed in a optical path of a taking lens unit which alters the direction of the optical axis and allows for a very thin profile electronic image pickup apparatus to be realized (Figure 1, Item 3; Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a reflecting mirror or "optical axis reflecting means" in the camera of Matsumoto to reduce the thickness of the Matsumoto camera. Matsumoto in view of Yokota does not explicitly disclose an electronic circuit board and main board as claimed.

However, it is noted that the combination of Matsumoto in view of Yokota does teach a camera device in which an image pickup unit is mounted in the vicinity of the bottom of the apparatus. Chamberlain discloses a modular camera wherein optional expansion boards may be placed behind the image sensor board so that the camera may be reconfigured (Figure 16 and 17; c. 7, l. 63 - c. 8, l. 3). Therefore, it would be obvious to include the ability to add optional expansion boards in the camera of Matsumoto in view of Yokota to allow a user to reconfigure and expand the functionality of the camera as desired. It is noted that due to the configuration of the camera as taught by Matsumoto and Yokota, it would be obvious to place the expansion boards below the image sensor so that the boards would be vertical to the bent optical axis as claimed.

It is further noted that Yokota teaches that a circuit board (i.e. a main board) for controlling the camera (since control is provide a CPU of some manner must be present) may be placed behind the lens unit and parallel to the bent optical axis (Figure 1, Item 9). By placing a circuit board in such an orientation, it is possible to prevent the camera from becoming too tall (e.g. a trade-off is made between the thickness of the camera and the height of the camera). Since one of ordinary skill in the art could have applied the teachings of Yakota to place a circuit board as shown and the modification would have resulted in only predictable results, it would be obvious to use a circuit board in the orientation shown by Yakota along with the circuit boards described by Chamberlain in the camera system of Matsumoto in view of Yakota. It is further noted that the board 9 of Yakota is shown as separate from an not in contact with the image sensor/lens stack.

[claim 2]

Regarding claim 2, Matsumoto discloses a light quantity adjusting device which mechanically adjusts the quantity of light passing through the taking lens unit (Figure 2, Item 201). Yokota discloses a similar device (Figure 1, Items 2 and 4) disposed between the optical axis alteration means and the image pickup device (Figure 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the light quantity adjusting device in a position between the image pickup device and the optical axis alternation means as claimed.

[claim 14]

Regarding claim 14, Matsumoto in view of Yokota does not disclose an IR cut

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film vapor deposited on the reflective surface. However, Official Notice is taken that using IR cut films on optical elements in an electronic image capture system is well known because infrared light can damage sensitive components of the image sensor. Therefore it would have been obvious to provide the IR cut film on the mirror because installing an extra optical element with IR filtering properties would increase the overall size of the optical system, which is not desirable in a compact camera.

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 5,796,428) in view of Yokota et al. (JP 03-089682) in view of Chamberlain (US 5,221,964) in view of Wakabayashi et al. (US 5,748,238).

[claim 9]

Referring to claim 9, Matsumoto in view of Yokota in view of Chamberlain does not disclose a means for cutting unwanted external light in the vicinity of part of the taking lens unit which an object light is incident.

However, Wakabayashi discloses a taking lens 11 disposed in a recess surrounded by the protruding edges of the camera body on three sides, and the protruding edge of the lens cover 10 on the remaining side. Having such a configuration would result in a hood around the lens cutting unwanted external light in the vicinity of the taking lens. Therefore it would have been obvious to position the taking lens of Matsumoto in view of Yokota in view of Chamberlain in such a manner that the protruding sides of the camera body would extend beyond the taking lens shielding it from unwanted light reducing lens flare.

[claim 10]

Referring to claim 10, Matsumoto in view of Yokota in view of Chamberlain does not disclose that a protrusion comprising an edge portion of a lens cover that is displaceable between a position for concealing the lens and a position for opening the same.

However, this feature is well known as taught by Wakabayashi. Figure 3 of Wakabayashi shows an image taking lens 11 and an edge portion of a lens cover 10 disposed in front of the image taking lens for opening as shown in figure 3 and for concealing the lens as shown in figure 6 to protect it. Therefore it would have been obvious to provide the lens cover of Wakabayashi with the image capture system of Matsumoto in view of Yokota in view of Chamberlain to provide protection for the lens from scratches and other damages but also because the protruding edge of the cover would provide shielding from unwanted light around the taking lens reducing the effects of lens flare.

[claim 11]

Referring to claim 11, Wakabayashi discloses a protrusion which is integrally formed as a protrusion on an external enclosure of the apparatus body (Figure 3).

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 5,796,428) in view of Yokota et al. (JP 03-089682) in view of Chamberlain (US 5,221,964) in view of Kikuchi (US 5,838,374).

[claim 13]

Referring to claim 13, Matsumoto in view of Yokota in view of Chamberlain does not disclose a means of moving the image sensor along the optical axis. However, Kikuchi discloses that moving an image sensor along an optical axis using a linear motor is a well known method of auto focus (Col. 13, Lines 60-67). Therefore it would have been obvious to provide a means of moving the image sensor of Matsumoto in view of Yokota in view of Chamberlain along the optical axis as taught by Kikuchi to properly focus the image incident upon the sensor.

6. Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 5,796,428) in view of Yokota et al. (JP 03-089682) in view of Chamberlain (US 5,221,964) in view of Orbach et al. (US 4,732,438).

[claim 15]

Regarding claim 15, Matsumoto in view of Yokota in view of Chamberlain does not disclose a beam splitter for splitting an incident light into a plurality of components, rays of light reflected at a semi-transparent surface of the beam splitter entering the image pickup device and rays of light passing through the semi-transparent surface of the beam splitter entering an optical finder for visually recognizing an object.

However, Orbach shows an image capture configuration in figure 3 having a taking lens unit 12 opposing an optical view-finding window 28 where object light is passed straight through a beam splitter 24 directly to the viewers eye. Therefore it would have been obvious to provide the optical viewfinder of Orbach with the image capture system of Matsumoto in view of Yokota in view of Chamberlain to allow object light to

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pass straight from the image taking lens to the viewer's eye along with reflecting light to the image pickup unit because optical viewfinder systems require no power to operate and would save battery power opposed to an LCD giving the camera a longer operation time.

[claim 17]

Regarding claim 17, Matsumoto in view of Yokota in view of Chamberlain does not disclose an optical viewfinder as claimed. Orbach shows an image capture configuration in figure 3 having a taking lens unit 12 opposing an optical view-finding window 28 where object light is passed straight through a beam splitter 24 directly to the viewer's eye. Therefore it would have been obvious to provide the optical viewfinder of Orbach with the image capture system of Matsumoto in view of Yokota in view of Chamberlain to allow object light to pass straight from the image taking lens to the viewer's eye along with reflecting light to the image pickup unit because optical viewfinder systems require no power to operate and would save battery power opposed to an LCD giving the camera a longer operation time. Orbach however discloses a fixed beam splitter instead of a movable optical axis alteration means.

Official Notice is taken that it is well known in the art to use a moveable mirror (i.e. optical axis alteration means) to selectively direct light between an optical viewfinder and an image pickup device since the use of a fixed mirror does not reduce the amount of light entering the optical viewfinder and image pickup device therefore resulting in higher quality images. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a movable mirror as

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claimed to create higher quality images by selectively redirecting all incoming light instead of splitting it into two different optical paths.

7. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 5,796,428) in view of Yokota et al. (JP 03-089682) in view of Chamberlain (US 5,221,964) in view of Chigira (US 5,298,933).

[claims 19 and 20]

Matsumoto teaches performing focus control by driving a lens (e.g. Figure 2, Item 205; c. 8, ll. 44-62), but does not explicitly show a lens displacing mechanism and driving source as claimed.

Chigira discloses a similar camera apparatus including a focus system including a lens (Figure 1, Item 5), a lens displacing mechanism (Figure 1 tem 11a, 12, 7c) and a driving source for driving the lens displacing mechanism disposed on a lateral side of a taking lens unit (Figure 1, Item 11; c. 3, ll. 53-68). Chigira further discloses a zoom lens including a similar lens displacing mechanism and driving source (Figure 1, Items 3, 6c, 8 and 8a). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a lens moving system as described by Chigira to move the focus lens of Matsumoto in view of Yokota without vibration and excess noise while moving the lens device (c. 2, ll. 1-11).

Conclusion

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8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Henn whose telephone number is (571) 272-7310. The examiner can normally be reached on M-F 11-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Timothy J Henn/
Primary Examiner, Art Unit 2622